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<b>(54) Title:</b> METHOD OF OBTAINING ANTIALLERGIC COMPONENTS FROM THE HOT-BED FIELD AGARIC BODY WITH EXCLUSION OF PATHOGENIC ORGANISM  <b>(57) Abstract</b>  <p>The present invention relates to a specific method of champignon fungus treatment by which a dry mass is obtained including a substance which provides for an outstanding antiallergic effect. Said method is characterized by step of disinfection carried out with proper disinfection means and preceding the steps of drying and cutting of said champignon mass, these steps being followed by the step of sterilization by ionization comprising the use of a cobalt charge (bomb) which is carried out after said mass has been formed into a final product.</p>		

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## METHOD OF OBTAINING ANTIALLERGIC COMPONENTS FROM THE HOT-BED FIELD AGARIC BODY WITH EXCLUSION OF PATHOGENIC ORGANISM

### The Field of Invention

The present invention relates to a method of treating the hot-bed field agaric body belonging to genus *Agaricus hortensis* capable of obtaining components providing for an antiallergic effect and being free of a contamination by pathogenic organism.

### Description of the Prior Art

The hot-bed field agaric known also as champignon includes, according to a research made by French physician Daquin, a substance effective against the allergic diseases and especially, against the dermatic ones. The same physician has published in 1944 at that time a surprising finding based on the statistical data collected from 86 clinical cases that the dry extract from said champignon fungi includes a very effective substance bringing about the healing of various allergic diseases. After consumption of a greater quantity of champignons an outstanding decline in clinical symptoms of dermatic diseases and of bronchial allergies has accured.

In ČSFR this particular problem has been studied by a medical team of Marie Apetauer, MD and Jaroslav Veselý, MD. The results of that study were published in Čs. Dermatology, 1975 No. 6, page 373-377 and later repeatedly in 1961, No. 5, page 329-334. In the period between 1957 and 1961 both physicians were occupied with testing the new therapy on some allergic diseases with use of a dry champignon substance of genus *Agaricus campester hortensis* Cooke and in result, they confirmed an outstanding antiallergic effect in cases of dermatic allergies both acute and chronic ones. The named authors recommended, with respect to the applied therapy using dry substance obtained from the champignon fungi, and on the ground of the clinically verified cases resisting, so far, to any

usual antiallergetic therapy, to introduced the new drug into production. This idea, however, has not been accepted because the drug obtained by the method known at that could not comply with the proper hygienical regulations.

Even at present, it is still not known which principle brings about the effect based on use of the champignon fungi. It is considered that the curative effect related to the allergic diseases may be dependent of some ferments included in the champignon substance and which, so far, could not be separated therefrom. However, according to present knowledge there exists relation between the way of fungus preparation and the healing effect and especially, it is known that a tretment at high temperatures could destroy or at least degrade the influence of the effective ferments. At present, there exists obvious increase in number of allergical diseases and especially among the infantile population. These disseanses are characterized by various clinical symptoms, however, they are mostly of a dermatic origin. The medicaments applied in such cases are neither indifferent nor without secondary effects. In addition, such medicaments are to be applied chronically and often for whole life which could influence the complete state of health. In comparision with the conventional medicaments the present drug obtained from champignon fungi provides for a reliable antiallergic effect without secondary indications.

From reasons stated above said drug is occasionally being introduced on market by the popular healers. It is a pity that this happens with a product which resulted from an unsatisfactory treatment and could cause the risks of a secondary infection for the patients. This is because of the presence of pathogenetic microorganisms which occure in intreated champignon fungi as in great quantities as in many genera. The champignon bodies, similarly as the bodies of other fungi of higher geni remain, in spite of the drying routine, strongly contaminated with microorganisms. In case of fungus plan-

ting in monocultures that contamination is far greater than at natural champignon cultures because the artificial planting requires application of a substrate fertilizer including the horse manure. Therefore, the powder made from industrially cultivated champignon fungi is contaminated with large quantities of microbe cultures as for the instance *Escherichia coli*, *Enterobacteria aerogenes*, *Staphylococcus epidermis*, *Staphylococcus aureus*, *Proteus*, microbes of the genus *Clostridium*, *Bacillus* and a number of moulds. Therefore, the drug prepared and applied under above described conditions could not comply with regulations concerning the hygienical, food productive and medical requirements.

#### Summary of the Invention

The main problem is seen in disinfecting and sterilizing the dry champignon mass in such a way and by such means which would retain the effectiveness thereof. With respect to the fact that the effective substance itself, included obviously in the champignon fungus, is yet not known and that the present knowledge of the proper therapy capable of effective healing of the allergical symptoms is considerably incomplete, there is the way in developing an utmost treatment and preparation of the fungus body mass belonging to the genus *Agaricus* and to the hybrids thereof.

Consequently, the object of the present invention comprises a specific method of champignon body treatment in order to preserve the same as an usual and harmless eatable component and to retain its effective substances bringing about an outstanding antiallergic effect. According to this method of said champignon body treatment the dry champignon mass being obtained, for example, by drying it at temperatures not exceeding 60 °C or by lyophilization and by pulverization thereof is, subsequently, being disinfected by means of the solutions of chloramine, sorbic acid, ethanol, peracetic acid, benzoic acid and by soluble salts thereof, respectively. Before the next step the fungus mass is being

rinsed with a drinking water and thereafter, sterilized by gas, as for the instance, by ethylen-oxid or glutaraldehyd within a closed environment. Subsequently, the fungus mass is cleaned with a stream of sterile air and thereafter sterilized with ionization dose of 0,1 to 15 kGy. As a radiation source a cobalt charge of  $^{60}\text{Co}$ -radiator is used.

As a result, there is obtained a substance being completely harmless both from the hygienical and the medical point of view. At the production and the treatment of food, eatables and pharmaceutical goods it is necessary to respect regulations and norms issued by the Ministry of health and Ministry of agriculture and alimentation, namely the Provision of the MZd ČSSR No. 18 from 1955 concerning the hygienical and antiepidemical conditions at the production of eatables, Provision No. 46 concerning the hygienical conditions of working environment, Norm No 86 2000 relating to the industrially produced pharmaceutical goods, State Norm No. 86 6002 concerning the medical drugs and State Norm No. 56 01100 concerning microbiological testing of eatables, articles of a common use and of the food production environment.

#### Examples of Elaboration of the Invention

##### Example 1

The gathered champignon fungi were purified by a mechanical way and before the cutting thereof they have been disinfected in order to prevent leaching and subsequent loss of the substances providing for an antiallergic effect. Said disinfection was performed with 1,5 % solution of chloramide for the period of 15 minutes. Thereafter, the fungi were removed from said chloramine solution and rinsed with a drink water in order to wash off any residua of chlorine. After the dripping has taken place the fungi were cut and dried in a drier by steadily streaming air at temperature of 40 °C. Finally, the dry mass was pulverized and formed

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for the purpose of application per os. In addition, it followed the sterilization of the product by ionization from a cobalt charge emitting the dose of 10 kGy.

#### Example 2

The mechanically purified champignon fungi were disinfected by 1 % solution of sorbic for the period of 10 minutes. Subsequently, the fungi were rinsed with a drink water and thereafter cut, dried and pulverized. For purpose of final sterilization by ionization a cobalt charge emitting dose of 8 kGy has been used.

#### Example 3

In this case it was used a different way of disinfection. The purified fungi were treated with 40 % solution of ethanol for the period of 10 minutes. Further steps which followed corresponded with previous example.

#### Industrial Utilization of the Invention

By the steps of disinfection and sterilization of the fungus mass the pathogenic substances therein are neutralized and in addition, a leaching of antiallergic substances is prevented whereby an effective, hygienically and sanitary harmless substance is obtained being suitable for treatment of allergic difficulties. The same substance would be applicable also externally for dermatological purposes as a cosmetic preparation with antiallergic effect.

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## P A T E N T   C L A I M S

1. A method of hot-bed field agaric mass treatment characterized in that the fungus bodies are mechanically purified, disinfected at least for the period of 3 minutes, rinsed with drink water or cleaned by a stream of sterile air, subsequently cut and dried by a sterile medium at temperatures not exceeding 60°C, said mass thereafter being pulverized and formed into a final product suitable for use by a patient, and in addition, sterilized by ionization with use of a gamma <sup>60</sup>Co-radiator emitting a dose not exceeding 15 kGy.
2. A method according to claim 1, characterized in that said step of disinfection is performed by a solution of chloramine with concentration thereof of 0,5 to 1,5 %.
3. A method according to claim 1, characterized in that said step of disinfection is performed by a solution of sorbic acid with concentration thereof of 1 %.
4. A method according to claim 1, characterized in that said step of disinfection is performed by a solution of ethenol with concentration thereof of 30 to 90 %.
5. A method according to claim 1, characterized in that said step of disinfection is performed by a solution of peracetic acid with concentration thereof of 0,05 to 0,2 %.
6. A method according to claim 1, characterized in that said disinfection is performed by the derivatives of para-hydroxybenzoic acid.
7. A method according to claim 1, characterized in that said disinfection step is performed by benzoic



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- acid and by the soluble salts thereof with concentration of 1 to 3 % .
8. A method according to claim 1, characterized in that said disinfection step is performed by ethylen oxide .
  9. A method according to claim 1, characterized in that said disinfection step is performed by glutaraldehyde.

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